

IOWA HIGHWAY RESEARCH BOARD

Minutes of September 27, 2002

Regular Board Members Present

J. Adam	D. Julius
J. Byg	B. Keierleber
R. Ettema	M. Nagra
J. George	C. Van Buskirk
R. Gould	J. Weber
L. Greimann	W. Weiss

Alternate Board Members Present

L. Jesse for K. Mahoney	J. Berger
G. Miller for J. Selmer	L. Brehm
G. Parker for R. Krauel	T. Fonkert
	R. Younie

Board Members With No Representation

None

Secretary

M. Dunn

Visitors

Gordon Smith	<i>Iowa Concrete Paving Association</i>
Sara Buseman	<i>Iowa Department of Transportation</i>
Dave Claman	<i>Iowa Department of Transportation</i>
Ed Engle	<i>Iowa Department of Transportation</i>
Dave Heer	<i>Iowa Department of Transportation</i>
Sandra Larson	<i>Iowa Department of Transportation</i>
Mohammad Mujeeb	<i>Iowa Department of Transportation</i>
Wallace Rippie	<i>Iowa Department of Transportation</i>
Jim Cable	<i>Iowa State University</i>
Ed Jaselskis	<i>Iowa State University</i>
K. Jeyapalan	<i>Iowa State University</i>
F. Wayne Klaiber	<i>Iowa State University</i>
J. (Hans) van Leeuwen	<i>Iowa State University</i>
Russell Walters	<i>Iowa State University</i>
Steve Andrie	<i>Iowa State University/CTRE</i>
Dale Harrington	<i>Iowa State University/CTRE - PCC Center</i>
Hosin "David" Lee	<i>The University of Iowa</i>
Jeff Porter	<i>USDA-NRCS</i>

The meeting was held in the Large Materials Conference Room at the Iowa Department of Transportation, Ames, Iowa. The meeting was called to order at 9:10 A.M. by Wade Weiss.

Agenda review/modification

- Wade Weiss had attended an LTAP Advisory Board meeting and wanted to speak in regards to that in the “new business” section of the meeting.

Wade Weiss announced member/alternate changes to the Board

- Greg Parker from the City of Cedar Rapids will be serving as Randy Krauel’s alternate.
- Jerry Weber will be retiring in October after 31 years of service.

Approval of the minutes

- Mark Nahra moved to approve the minutes from the June 28, 2002 meeting with no additions or corrections. Doug Julius seconded. Carried with 12 yes, 0 no, and 0 abstaining.

Final Report, HR-398, “Hydraulics of Iowa DOT Slope-Tapered Pipe Culverts”

- Dave Claman presented the basic principles, the benefits, a brief summary of the proposal, the research plan, the site requirements, the 5 basic steps for hydraulic design and the diagrams of the research which was finalized last November.
- This design is applicable in unique situations, like the Fort Madison area, where there is quite a bit of terrain differential from the upstream side to the downstream side of a culvert. In these situations, this will be looked at to see if it is appropriate to use.
- John Adam moved to approve the final report. Glen Miller seconded. Carried with 14 yes, 0 no, and 0 abstaining.

Final Report, TR-446, “Technology Transfer of As-Built and Preliminary Surveys Using GPS, Soft Photogrammetry, and Video Logging”

- Dr. Jeyapalan, Iowa State University, reviewed the priorities and the role of the steering committee of this research. One of the priorities was on local geoid research. He presented the information on the 4 phases and the conclusions. Another priority was on positioning by video logging and soft photogrammetry. He included the information on the initial calibration of the system, accuracy using the system, conclusions and recommendations.
- There was clarification as to who served on the steering committee.
- Jim George moved to approve the final report. Larry Jesse seconded. Carried with 14 yes, 0 no, and 0 abstaining.

Final Report TR-475, “Synthesis of Best Practices for Increasing Protection and Visibility of Highway Maintenance Vehicles”

- Steve Andrie, Iowa State University/CTRE, reviewed the findings from the study conducted by the Principal Investigator, Ali Kamyab, who is no longer at ISU.

- The research objectives and tasks, the research committee, the literature review sources and topics, the survey response rates, and the summary of surveys were all presented.
- With this being a synthesis of the current practices, there were no tests run during this study to measure what is most effective. It is assumed that those practices most frequently used must be performing well.
- It was also mentioned that there are laws in place which reserve certain colors of lights for emergency vehicles, which in turn restricts light choices for maintenance vehicles.
- Mark Nahra moved to approve the final report. Roger Gould seconded. Carried with 14 yes, 0 no, and 0 abstaining.

Review of proposals from 1st solicitation for FY 02-03

Development of Abutment Design Standards for Local Bridge Designs

- One proposal was received from Dr. F. Wayne Klaiber, Dr. David White, and Dr. Terry Wipf, Iowa State University.
- *Comments/Discussion:*
 - This proposal contains a good combination of researchers for this type of work.
 - There was a recommendation of the funding to be 100% Secondary.
 - There was discussion about hydraulics in terms of scour protection, coming up with standard designs of bridges and abutments across streams, etc., not being included in the proposal.
 - It was felt that that lies as a separate issue. This topic is looking more at the structural and load bearing capability of the bridge, and the scour design and potential is a hydraulic design issue that gets into the size and type of opening, which is looking more at the DOT standards. This issue is about local bridge designs and is an outgrowth of the project that Dr. Klaiber and Dr. Wipf had done for the Board previously. The other is also an important issue and is more about the sizing of the structure, but not in the scope of this study. There is another topic that will come up in the next round of RFPs that will cover standard bridges and sizing.
- *Issues/Concerns that the board would like staff to address:*
 - None
- *Vote to approve:*
 - Mark Nahra moved to accept Dr. Klaiber, Dr. White and Dr. Wipf's proposal with the funding of 100% Secondary. Brian Keierleber seconded. Carried with 15 yes, 0 no, and 0 abstaining.

Development of Object-Oriented Specifications for IADOT and Urban Standards

- Competing proposals were received from Dr. Edward Jaselskis and Dr. Russell Walters, Iowa State University; and Dr. Hosin "David" Lee, The University of Iowa.
- *Comments/Discussion.*
 - In comparing the ISU proposal for this topic to the ISU proposal in the previous topic, it was questioned why "Professional & Scientific Staff" was needed in this one and was not needed in the other one.
 - It was commented that the above budget item seemed to be for compensation for time toward additional tasks above the normal involvement.

- With the University of Iowa proposal, a concern was mentioned that there may not be enough involvement on the early end to ensure compatibility with the current specification system.
 - In response to the previous comment, it was felt that both proposals listed use of standardized software that is already found on the market and both addressed the compatibility issue.
 - There was favor expressed towards the ISU proposal for a suggested benefit cost analysis.
 - ISU's proposal has a connection with CTRE, which is beneficial because a lot of the background work (Urban Design Specs) was done by CTRE for the development of these standards.
 - A comment in general about the project was that it is a great tool for estimators and designers, but there is a concern for how well it will integrate into the field.
- *Vote to select proposal:*
 - Iowa State University, Dr. Jaselskis and Dr. Walters: 12 votes – ***Selected***
 - The University of Iowa, Dr. Lee: 1 vote
 - 2 Abstaining
 - *Issues/Concerns that the board would like staff to address:*
 - None
 - *Vote to approve:*
 - Larry Jesse moved to accept Dr. Jaselskis and Dr. Walters' proposal with a funding split of 45% Primary, 50% Secondary, and 5% Street. Mark Nahra seconded. Carried with 13 yes, 0 no, and 2 abstaining.

Economics of Using Calcium Chloride vs. Sodium Chloride for Deicing/Anti-icing

- One proposal was received from Dr. Wilfrid Nixon, The University of Iowa.
- *Comments/Discussion:*
 - The proposal seemed very thorough.
 - One of the leaders in this area, Dr. Nixon, is undertaking the research.
 - It was good to see the use of an expert task group.
 - It was noted that most of the research would be done in a lab setting. That seemed to be the best option to get the kind of control needed to see the differences.
 - With the use of the right people on an expert task group, it was questioned if the use of Dale Harrington and Tom Cackler was a duplication of sources of information.
 - With this being a non-competitive proposal, Steve Andrie was asked to respond to the above question. He said that in general, a project is a mix of faculty and professional staff to do the job. The expert task group provides guidance, but does not actually do the work. The faculty and professional staff work as a team. For instance, Tom Cackler works with faculty to generate the project. Dale and Tom aren't doing lab related work, but bring their expertise and guidance inside the project. Faculty has other stresses like classes. Professional staff can focus on only the research and that makes it easier to actually deliver the product on time. It's a business philosophy.
 - There was support shown for the cooperation of the two universities working together. The Board has promoted this.
 - It was mentioned that it appeared that there wasn't an increase; it was more of a matter of costs being divvied up a bit differently. It was still within the requested budget.
 - It was also said that one or two people usually do not have all the answers and it was good to have additional staff with expertise to go to for the overall completion of the proposed activity as long as the funding didn't change.

- There were no changes recommended to this subcontract situation, it was more of a request for clarification as to why the professional staff was involved.
- *Issues/Concerns that the board would like staff to address:*
 - None
- *Vote to approve:*
 - Lowell Greimann moved to accept Dr. Nixon's proposal with the funding of 70% Primary, 25% Secondary and 5% Street. Jerry Weber seconded. Carried with 14 yes, 0 no, and 1 abstaining.

Slope Stability Evaluation and Remediation Techniques for Iowa

- One proposal was received from Dr. David White, Iowa State University.
- *Comments/Discussion:*
 - It was said that this was a good proposal and seemed really involved.
 - It was questioned if the proposal was focused on zip piles or where the emphasis and effort should lie. It was felt that it was not quite clear.
 - There were comments that zip piles were just a portion of the research. It was to be a broad base with multiple techniques. Zip piles just happened to one of them that was identified.
 - It was stated that it looked like there was good emphasis on analysis too.
- *Issues/Concerns that the board would like staff to address:*
 - With a target of March 1, 2003 for the start date, it was mentioned that Mark Dunn could clarify the issue of the priority of effort (in regard to zip piles) and bring it back to the October meeting.
- *Vote to approve:*
 - Mark Nahra moved to table the proposal until the October meeting and have Mark Dunn clarify the focus with Dr. White. Roger Gould seconded. Carried with 15 yes, 0 no, and 0 abstaining.

Proposal/Interim Report for additional funding for TR-459, "Reuse of Lime Sludge from Water Softening in Road Construction"

- Dr. van Leeuwen, Iowa State University, reviewed information on the water softening and typical water treatment process, information on the waste from that process and possible uses that were looked at in the first portion of this research. He presented his proposed direction with further testing including structural fill applications and embankments, subgrade/subbase stabilizer, dust control on unpaved roads, and cost models for drying and transporting. He has \$70,000 funding from other sources. This proposal requests additional funds of \$39,700 from the Board (initial Board funding: \$27,433).
- A question was raised that if you have a layer of this material, then a layer of earth on top, will there be an impervious surface so the water can't effectively drain out and present a land slide or a slip plane potential? This may be something to look into.
- Greg Parker moved to accept the proposal with the recommended funding split of 25% Primary and 75% Street. Glen Miller seconded. Carried with 14 yes, 0 no, and 0 abstaining.

Problem Statement, “Stringless Portland Cement Concrete Paving”

- Dr. Cable, Iowa State University, presented the two approaches for stringless paving, GPS and Robotic Total Station; the use of 3-D models; the paving projects involved; the vendor information, the follow up pavement evaluation, and the advantages of time, labor, and cost savings for the proposed research.
- There was discussion on the grading dealing with cut sections and fill sections. The grading will be done this summer and then the profile will be set. There was concern that the road will change during the lapse of time over the winter. The Washington County Engineer is planning on adjusting the grade so it's high enough so when it is trimmed for paving, it's always in the cut section.
- The savings that is being estimated by Washington County technicians is \$3000/mile, because they don't have to set the hubs and do elevations. The estimated savings for the contractor is \$4000/mile on a 22-foot wide pavement.
- Due to the specific needs of the equipment, the idea of receiving only a few bids was discussed. Dr. Cable reported that Gomaco had said that there are about 5 or 6 contractors with both the trimmer and the paver in the area. With Trimble, all the major pavers in Iowa, except maybe 1, would have the right equipment.
- There was no budget presented in the problem statement. The estimate is about \$200,000, which includes \$40,000 to \$50,000 allocated for equipment rental.
- It was stated that this emerging technology is going to happen if we spend research funds on it or not, but it would be to Iowa's benefit to get ahead of the game. It could also help get it out in the industry quicker.
- Mark Nahra moved to recommended the development of a proposal to be brought back to the Board. Doug Julius seconded. Carried with 12 yes, 0 no, and 2 abstaining.

Review of RFP, “Development of a Computer Program for On-Road Impoundment Structure Design”

- With the short time between prioritizing topics and writing the RFPs, there was not enough time to gather sufficient information needed to finalize this RFP at the June meeting. Mark Dunn contacted the NRCS for assistance in developing this RFP.
- There were no changes recommended. It is still considered in the first round of solicitations for the FY 02-03. It will be mailed out with the goal of reviewing the proposals received at the December 12, 2002 meeting.

Discussion on proposal selection if an outside funding source(s) is involved

- After discussion, it was decided that if the outside source is more familiar with the topic, the Board would review their comments and would be likely to follow their recommendation. If there is a case when there is disagreement, the Board could choose to develop an IHRB subcommittee to handle further discussion and bring resolve. It will be handled on a case-by-case basis.

Review requested changes to the Calendar of Activities

- The Board had requested the inclusion of a July meeting in the annual meeting schedule. Mark Dunn reviewed the Calendar of Activities, removed the March meeting from the schedule and added the July meeting. The change allowed for less of a gap in time for the summer and allowed for more time to be spent on topic development and individual review and ranking after the topic brainstorming session in February.

New Business

Dr. Lee made a couple of suggestions to the Board regarding solicited proposals

- He suggested that the Board submit comments to Mark Dunn so that the PIs can receive more technical feedback and improve upon proposals submitted. This would likely raise the overall quality of proposals to the Board.
- He also mentioned the option of the Board revisiting the idea of having a secret ballot to vote on competing proposals.

Wade Weiss reported on some information from a recent LTAP Advisory Board meeting

- Wade reported on some of the LTAP budget issues keeping in mind the desired goals to be accomplished and from where the money comes. LTAP federal funding has been reduced. Training fees have been raised, as the IHRB recommended, yet there has been reduced participation. The Board's portion of funding has been lowered every year as was requested, however, Wade commented that maybe the level of funding from the IHRB may have dropped too low (\$82,000 last year). One suggestion was to set a level around \$100,000 per year and maintain that level for 2 or 3 years then have the Board review after that. This project would not have to return to the Board every year if that change was decided.
- Some of the history of the funding was reviewed. It started around \$60,000 to \$70,000 then got up around \$160,000 to \$170,000 coming out of the Board to fund technology transfer and not directly supporting research. It was also a concern of how much of the funding was supporting the larger operation of CTRE. At one time there wasn't any follow through of this from their perspective, in fact, 2 Board members were supposed to be included in the advisory board and were never invited to a meeting.
- It was mentioned that assisting in technology transfer is a good thing, but the Board's main goal needs to be recognized as funding research.
- LTAP funding has been brought back down considerably now. It was suggested that it may have just been overdone. Currently the needs are well defined and funds are genuinely needed.
- Reviewing what it costs for continuing education and information sharing in other states, this is still a bargain.
- Wade will report this feedback to Duane Smith so he has the information when preparing the LTAP proposal for the October meeting.

Wade Weiss adjourned the meeting.

Date of Next Meeting: THE NEXT MEETING WILL BE HELD FRIDAY, OCTOBER 25, 2002 AT 9:00 A.M. IN THE LARGE MATERIALS CONFERENCE ROOM AT THE IOWA DOT, CENTRAL COMPLEX, IN AMES, IOWA.

Mark Dunn, IHRB Secretary